

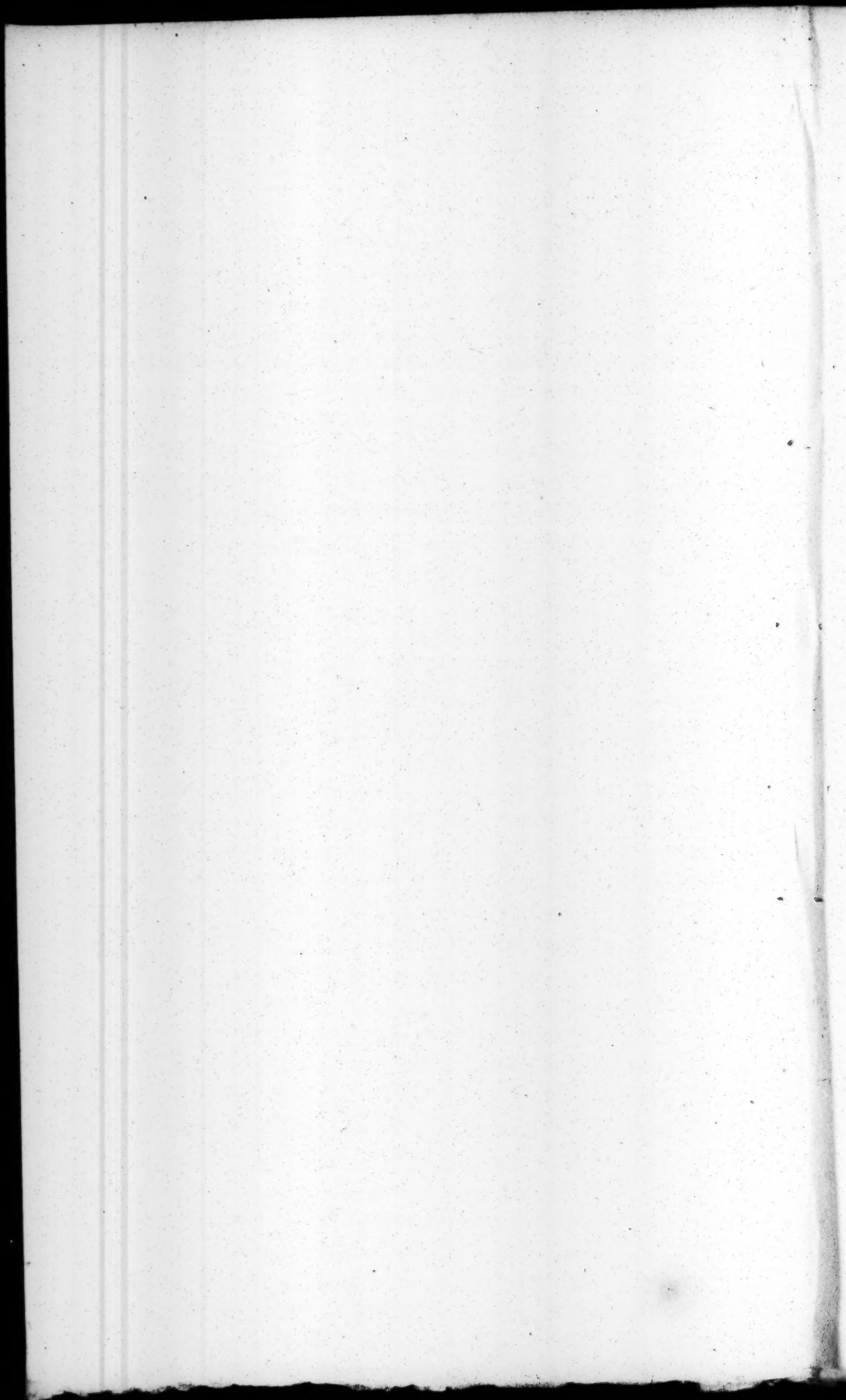
A N S W E R
TO THE
NOTES on the POSTSCRIPT
T O

Observations Anatomical and Physiological,

B Y

ALEXANDER MONRO junior, M. D. and Professor
of Medicine and of Anatomy in the University of
Edinburgh.

E D I N B U R G H:
Printed in the Year M,DCC,LVIII.



A N S W E R

TO THE

Notes on the POSTSCRIPT, &c.

N. I. **T**HE Author of these Notes gives us to understand, that he would not have wrote in answer to the Postscript to my Observations, but that the first passage of that Postscript seemed to insinuate a doubt, whether Dr. AKENSIDE's paper inserted in the *Phil. Transf.* was a genuine extract from the *Gulstonian Lectures 1755.* — A doubt which that passage, according to the most natural interpretation of it, does not appear to me to convey, and which I do assure the Doctor I was very far from having the smallest intention to insinuate. Had I, indeed, printed the words, *he says, hinted, conjecture, called,* in the emphatic *Italic* character, as our Author, in quoting this passage *verbatim* from my Treatise, has thought proper to do, I would, no question, have bestowed on them some such significancy: If these words were construed to mean offence, surely it would have been sufficient for our Author to have distinguished them by *Italics* in his Comment on them.

All that I intended was, to give a short narration of what Dr. AKENSIDE had done on the subject:
And,

And, as I knew only from the *Phil. Transf.* that the Doctor had read such a Lecture in 1755, I naturally used this expression: *Dr. Akenfide fays, or informs us, or, as our Author words it, the title of the Doctor's Paper does in effect say he hinted, or proposed, this conjecture.* I said *conjecture*, because the Doctor himself did not describe his opinion as a certainty, or as more than *the very next thing to a Physical certainty*, and I was endeavouring to show that he was very far from proving it to be so much.—I am also censured for saying “the paper which is called an extract.” Yet is it not so called or intitled in the *Phil. Transf.*? And what else than this can I be justly inferred to mean by that expression?

Upon the whole, it is hard to conceive, how a person, who relates *all* that he knows of a subject, can be alleged to misrepresent it; or how our Author could fancy that I would venture, without producing the least reason, to call in question a transaction before many witnesses; especially that I would raise a doubt of the Doctor's having *before* proposed an opinion, which, as it *then* stood in print, I endeavoured to show, was by no means well founded.

Our Author gives the Doctor's reasons, (N. p. 4.) for not publishing his paper in 1755, when, so far as he knew, no other person had wrote upon the subject, or had any title to what he imagined a discovery; but delaying to read it before the Royal Society, till Nov. 1757, that is, till several months after the subject had been amply canvassed; and then at last reading and publishing it without adding any material argument in favour of the new opinion, or pretending to have delayed this publication in order to bring his paper to greater perfection.—Whether these reasons would have more readily occurred to one unacquainted with Dr. AKENSIDE's views, than the supposition I had formed, *viz.* “that he seemed then only “ to discover, that his conjecture was so well founded
“ as

“ as to be worthy of the attention of the Public,” is left to the determination of the Reader.

In his subsequent Notes, our Author undertakes to invalidate the objections which I had proposed against the Doctor's Theory, but has, in every one of them, so very much misunderstood and so greatly misrepresented my arguments, as to put me under the necessity of endeavouring to evince their justness and propriety by a more full explication of them.

N. II. This note shall be answered along with N. VIII. under which it may be included.

N. III. I had said, “ That “ Dr. AKENSIDE opposes to *Boerhaave's Hypothesis* nearly the same “ arguments which the illustrious Dr. HALLER has “ done in his *Prim. Lin. Phys.* § 44.” Our Author replies, “ The truth is, they are *altogether* the same “ arguments which Dr. HALLER has used in his “ *Prael. on Boerhaave's Inst.* v. 2.”—If by this remark, any thing further is meant than an apology for Dr. AKENSIDE, that he did not acknowledge to whom he was *altogether* indebted, it is, that I am criticised for quoting an opinion of Dr. HALLER from the latest and most perfect of two works in which he proposes that opinion.

N. IV. “ Dr. MONRO, (*says our Author*) in the “ next place, replies at large to the objections which “ Dr. AKENSIDE had urged against Dr. HALLER's “ Theory; but begins with a misrepresentation. “ For, (*says he,*) Dr. MONRO takes no notice that, “ according to Dr. HALLER's Theory, the lymphatics receive their fluid from the veins and excretory ducts, as well as from the arteries: And, (*he adds*) perhaps it might not be difficult to assign his “ motive (*a*).”

As

As for what our Author has hinted of my *motive* for this silence, I believe he will be at a loss to explain it, and probably, upon a cool review, will not intirely approve of such insinuations as are here conveyed to his Readers, if he only takes the trouble to look into my *Latin Treatise* on the lymphatics, where their origin from excretory ducts of glands is fully remarked and insisted on (*b*).—In the next place, Dr. HALLER does not mention their rise from the veins or excretories of glands, in that passage of the *Prim. Lin. Phys.* (*c*), which I had cited; and to which I referred for the reasons mentioned in the Remarks upon Note III.——Further, Dr. AKENSIDE's aim here was, or ought to have been, *only* to invalidate the arguments offered in proof of *lymphatic arteries*. But surely, we cannot call a vessel, carrying a liquor, from an excretory duct of a gland or from a vein, towards the heart, an artery; we must call it a vein. To have mentioned therefore such of the lymphatics as arise from the excretories of glands or from the veins, where our view was *only* to disprove the existence of lymphatic arteries, would have been altogether superfluous. Nay more, as Dr. AKENSIDE agrees with Dr. HALLER in supposing that lymphatics arise from the excretory ducts of glands (*d*); had I represented him as *urging his objections* against this particular of Dr. HALLER's Theory, which our Author censures me for not having done, I must have represented him as combating his own opinion *.

In the next paragraph (*e*), our Author endeavours to defend Dr. AKENSIDE's first argument against Dr.

(*a*) Notes. p. 10.

(*b*) De Venis Lymphaticis valvulosis W. X. Y. Z. AA.

(*c*) Dr. Haller's *Prim. Lin. Phys.* § 181.

(*d*) *Ph. Transf.* vol. 50. p. 328. l. 11, 12.

* The truth is, which, but for the smartness of our Author's animadversion, I should have overlooked, that Dr. AKENSIDE, *Ph. Transf.* p. 325, mentions as from others the opinion, that lymphatics are derived from the excretory ducts of glands, endeavours to refute that opinion, and yet afterwards adopts it. p. 328.

(*e*) Notes, p. 10.

Dr. HALLER by saying, that “ No man, (he supposes,) ever thought of filling the lymphatics from an invisible blood-vessel, or from any other than one of considerable magnitude and *much larger than are* to be found in many places where lymphatics seem to have their origin :”—I must confess, I am equally at a loss to understand this explication of the Doctor’s argument, as I was formerly to understand the argument itself. Dr. HALLER, to be sure, never thought of filling the lymphatics immediately from, that is, of fixing his injecting tube into, an invisible blood-vessel, because it is *invisible* : But no man could think of filling them from an artery, *but*, by the intervention of, or, *mediately by an invisible vessel*. And therefore the question was not, Whether there was a *large* blood-vessel in the neighbourhood of the rise of a lymphatic vessel, which, says our author, Dr. AKENSIDE’s expression meant ; but, as I have stated it (in P. S.) Whether there was any blood-vessel at all in their neighbourhood.

Dr. AKENSIDE’s second Objection to Dr. HALLER, was, “ That it contradicts the whole analogy of nature, to suppose the motion of an animal fluid more discernible in the veins than in the arteries.”

Dr. HALLER and those who defend the system of lymphatic arteries, suppose, that Nature, which uses in all its operations the most simple means, chose to blend the red blood and the lymph together; in order to propel both by the action of *one heart* : But that, in the extremities of the arteries, the red blood and the lymph are divided from each other, the one to return to the heart by the red veins, the other by the lymphatic veins : And that these liquors are separated from each other by the one’s consisting of larger globules than the other ; and therefore that these vessels differ only in size, having their liquors
circulated

circulated in a similar manner.—If we compare the velocity of the red blood or of the lymph in the arteries, with their velocity in the veins, at *similar distances from the heart, or similar transverse diameters of the tube*, the velocity of both is undoubtedly greater in the arteries than in the veins: But we cannot perceive with our *eyes* the motion of the lymph, or this motion is not *discernible*, in the large arteries, because the lymph is there coloured with the red blood, and the whole mass appears uniform.—If we compare the velocity of the red blood in the capillary arteries, or of the lymph just when supposed separated from the red blood (and where the vessels containing it, accurately speaking and according to Dr. HALLER's Theory, first deserve the name of lymphatic arteries) with the velocity of the blood and lymph in the large red or lymphatic veins; both agree in this, that the velocity is less in the former than in the latter

—According therefore to Dr. HALLER, Nature has made use of the most simple, and most compendious way of circulating the red blood and lymph; and the motion of the lymph in the arteries could only have been made sensible to our *eyes*, or *discernible*, had Nature employed the more complex means of *two hearts*, the one for circulating the red blood, the other for circulating the lymph, so as to have kept these two humours from being blended together.

Where then is that part of Dr. HALLER's Theory, which Dr. AKENSIDE's Objection proves contradictory to the whole analogy of Nature? Or why should we not *talk of such lymphatic arteries*, for any thing Dr. AKENSIDE has said against them?

In his next paragraph (a), our author should have cited some of those Writers “who, he conceives, it “ would be no difficult task to prove, have called the “ lymphatic vessels, veins, merely because they are
“ furnished

(a) Notes, p. 13. 14.

"furnished with valves": He would, by this means, have acquitted the Doctor of being the Author of such an improper definition of a vein as might intitle the large arteries and heart to be also called veins.— At any rate, this is not the reason given by the greater number of the best Authors for calling these vessels veins; it is not particularly Dr. HALLER's reason, which Dr. AKENSIDE's expression, as he was endeavouring to refute Dr. HALLER's theory, implied it to be.

I had affirmed, That the Lymphatics have, with great propriety, got the name of veins, "because the fluid in them moves from the smaller to the larger branches and towards the heart". To which our Author replies, that, "no person could ever call them veins on this account, because, at that rate, the pancreatic and biliary ducts might have been called veins also."—— This criticism has certainly been the effect of hurry, for our Author knows well enough that the bile and pancreatic juice do not move toward the heart; and he cannot but observe that motion towards the heart is the most material part of my definition of a vein (a).

Dr. AKENSIDE said, That it seemed rather *an instance of want of thought*, to take for granted, that because the lymphatic vessels are veins, they therefore must be the continuation of arteries. I had, before that, said in my Latin Dissertation, and I repeated it in the Postscript to my late English Treatise, That, *to take this for granted was a petitio principii*; this term, *Petitio Principii*, appearing to me far more accurate than *instance of want of thought*, since altho' every *petitio principii*, at least among honest men, is an

B instance

(a) The Reader will please to remark, that my definition of a vein excludes that vessel, which is called *vena portarum*, as in effect it performs the office of an artery, and has been considered as such by the most judicious Physiologists.

instance of want of thought, yet every *instance of want of thought* is not a *petitio principii*.—But is it a just inference, that, because I did not adopt the Doctor's expression, but chose what appeared to me the most accurate of two terms for expressing the same meaning; I therefore supposed that these two terms or expressions conveyed quite opposite ideas? So our Author interprets it.

I had said, “*To take for granted*, that, because the lymphatics are veins, they therefore have corresponding arteries, is a *petitio principii*; but surely this (*viz.* that because they are veins, they therefore have corresponding arteries) is a presumptive argument more in favour of, than against the opinion which the Doctor is combating.” Is not the meaning of this sentence most evidently, that as the red veins have corresponding arteries, this is a presumption that the lymphatic veins have such likewise; but that to take this for an absolute certainty, or *to take it for granted*, is a *petitio principii*? And what are those rules of Logic with which this is inconsistent?

N. V. The chief point in the 5th note, falls under the same head with note 8th and shall be there considered.

Our Author, at the end of this note, represents Dr. AKENSIDE as inferring, from the lacteals being absorbents, that the vessels commonly called lymphatics are also absorbents; and Dr. MONRO as making the same conclusion from the lymphatics of the *testis* being absorbents. “Do not both then, (*adds he,*) argue from analogy? Or is the conclusion of one of them more a conjecture, or less truly experimental, than that of the other.”

If

—If I prove the lymphatics of the *testis* to be absorbents, dont I *directly* prove that some of the vessels commonly called lymphatic are absorbents? How then is it said, that in this I reason only by analogy?—Besides, was it not more conclusive to reason from the resemblance one branch of the vessels commonly called lymphatic bore to another, than from the less obvious analogy of the lacteals to the lymphatics.—But our Author ought to have remarked, That I had also employed Dr. AKENSIDE's argument among others; after proving that the common opinion concerning lymphatic arteries was founded on a mistake, which Dr. AKENSIDE cannot say he had done.

I must too warn the Reader, not to impute to me the notion which is here put in my name; *viz.* that quick-silver extravasated into the cellular membrane is absorbed from thence, especially in a dead animal: I never did conceive or hint any such thing: I know well enough that quick-silver divided into invisible parts may be absorbed by our vessels, but that otherwise it cannot, nor is it even absorbed by glass capillary tubes.

N. VI. I had remarked, that I never could force quick-silver from the lacteal trunks backwards into the cavity of the guts, and added, that I knew no accurate Author, who had affirmed this experiment ever succeeded with him, as Dr. AKENSIDE supposed. Our author pretends to defend this allegation; and yet, by not citing his authority, shows plainly, that the Doctor had none.—He concludes this note by saying that, “ Dr. AKENSIDE may be allowed a little more
“ humble faith in the accuracy of anatomical Au-
“ thors, than can well be demanded from Dr. Monro;
“ who is just come from arraigning of an unaccount-
“ able inaccuracy, many the most eminent Anato-
“ mists

“ mists of the last hundred years”.—As Dr. AKENSIDE does embrace the same doctrine I have done, he at least allows that I have arraigned these Authors with justice. Is Dr. AKENSIDE then such an enemy to improvement, as to think, the rooting out an old and general prejudice, and the establishing a new truth, blame-worthy? Or, am I more censurable for having rejected an opinion from a number of reasons, than Dr. AKENSIDE is for having rejected the same opinion from a part only of the same reasons?

N. VII. I had alleged, “ That we could not introduce a coloured liquor from the intestines into the lacteals *at pleasure*, or without the assistance of that energy, which life and its remains give”; that is, that it cannot be done by us even where all the organs are intire, if the animal is dead, but that life performs this action independently of us, and that we are only spectators of it, not actors in it; all that we can do being perhaps to push on what life has taken into the vessels: And therefore it appeared to me not a little improper, to say that *we can* do this *at pleasure*.

I had observed, that the lacteals, where they pass thro’ the coats of the intestines, are not *without valves*, as Dr. AKENSIDE alleged they were; and added, that it is highly probable they are furnished with them from their very beginning. Our Author tells us, that I produce no reasons for the probability. Without other argumentation, have I not said, they have valves so very near their origin as where they pass thro’ the coats of the intestines: And that they have valves, even where they emerge from the villous coat to pass thro’ the muscular, I know from having fixed pipes into many of them at this place, and having tried in vain to inject them with mercury
or

or wax in the direction towards the cavity of the intestines.

N. VIII. We are now come to examine the 8th and last note, under which note 2d, and the chief part of note 5th might have been included.—The sum of the whole is, *first*, Whether it was not absurd to propose this new opinion, until the experiments offered by Physiologists, in proof of lymphatic arteries, were otherwise explained and refuted: And *secondly*, Whether Dr. AKENSIDE's concessions, in his first paragraph were not inconsistent with his conjecture or sentiment, that the lymphatics were absorbents.—As for the former, I have endeavoured to prove the absurdity of it so fully in my late English Treatise, that I shall refer intirely to it; and shall only here consider the Doctor's concessions.

His first paragraph runs (a) thus, “It is proved, by
“ a multitude of experiments, that the lymphatics
“ communicate with the blood-vessels. They may
“ be distended by blowing air, or by injecting water
“ or mercury, into an artery; and the lymph, which
“ they carry, is frequently, in a morbid state,
“ found tinged with a mixture of the red globules
“ or *crassamentum* of the blood. Upon this founda-
“ tion, two different theories have been raised, con-
“ cerning the connection of the lymphatics with the
“ arteries.” That is, Authors for near a hundred
years past had unanimously agreed, that these experi-
ments proved unquestionably, that the lymphatics
communicated or were *connected* with the arteries in
the same manner as the red veins, or that they
were the continuation or reflection of the arteries.
They had uniformly used this word *communicate* or
communico in that sense (b). Dr. AKENSIDE did not
show

(a) Phil Trans.

(b) To name but one of many Authors, WINSLOW every where understands by *communication* the direct *anastomosis* or continuation of one vessel with another. See Exp. Anat. T. 3.

show any fallacy in these experiments, neither did he define his meaning of the word *communicate*: Was I not therefore to understand it in the same sense that all the world did, so far as I knew, when I wrote my Treatise? Let the Reader, for example, suppose, that I had told him, that a liquor injected into the mesenteric arteries passed into the lacteal vessels, and, that this plainly proved, that the lacteals *communicated* with the mesenteric arteries: I only ask, if he would not have thought I meant to say, there was a direct *anastomosis* or continuation between these two sets of vessels? If so, then Dr. AKENSIDE's expressions and concessions, in his first paragraph, must appear to the Reader, as they did to me, inconsistent with his idea of the lymphatics as a system of absorbents.

In this note our Author endeavours to acquit the Doctor of this imputation of inconsistency, by proposing a theory, according to which the Doctor imagined the lymphatics to be filled by injecting into the blood-vessels. The Reader, however, will please to observe, that this is no objection to the remarks I *had made*, as it was impossible, from any thing the Doctor had *before* said on the subject, to collect *this* theory.

Were this doctrine only deducible from such experiments as our Author cites, it would perhaps be no difficult task to overthrow it (*a*): But, as the very diligent

(*a*) I have proved by experiment (*Dis. de Venis Lymphat. Val-aul. in Prolegom. et § i. L.*) that the lymphatics of the Spleen and Testis are not filled, from the splenic and spermatic veins, in the manner our Author supposes.—The lymphatics of the *Penis* of the dog, are said by *Cooper* and *Drake* to be filled only after the air gets into its cells: And I observe, that, in this animal, the veins of the *Penis* have numerous valves, which hinder fluids to be injected backwards in them; which structure is quite unfavourable to our Author's Hypothesis.—And from those experiments on the Renal Vessels, as *Cooper* (on *Bistloo T.* 43.) relates them, I own I am not able to collect the smallest hint in support of such a theory.—But the most unlucky circumstance for the application which our Author makes of his theory, *viz.* to explain how the lymphatics

diligent Dr. MECKEL of Berlin has proposed at large, and endeavoured to establish this doctrine from his own experiments, I shall not at present object to it in general.

Our Author is pleased to add, at the close of this argument, (p. 23.) that, “ The manner in which “ Dr. MONRO accounts for the introduction of his “ quicksilver, is quite inapplicable here: Nor is it “ to be conceived, that air, injected into a vein and “ extravasated from it, should be instantly taken up “ by the roots of the nascent lymphatics so as to distend the valvular trunks. It would have been well “ if he (Dr. MONRO) had considered this, before he “ pronounced so definitively on Dr. AKENSIDE’s inconsistency.” Without alleging, that our Author has altogether misunderstood the explication I give of my experiment (a); or urging, that it is a very unsatisfactory way of reasoning on a physical subject, to say, without trying the experiment, that a fact is not to be conceived which another has affirmed, from his repeated experience, and demonstrated to the conviction of many eminent men, judges of the matter; I shall only refer our Author to his two immediately preceding pages, p. 22. l. 18. and p. 21. l. 18, 19, 20. in the latter of which, he seems to conceive well enough “ how mercury may be extravasated in such a manner “ as to be visibly absorbed by the lymphatics;” tho’, in the above quoted sentence, he tells us he cannot conceive how air, which, as an anatomical injection, is a more penetrating fluid, can be taken up by those vessels.

The

lymphatics are injected from the arteries, is, that they are remarked to be filled before any of the injection has got into the red veins. And to suppose that the lymphatics terminate in the arteries is absurd.

(a) See remarks on N. V. last par.—Add that the experiment last mentioned in Note (a) p. 14. proves either, That the lymphatics are continued with the arteries, which Dr. AKENSIDE denies; or, That they are filled by extravasation, as I affirm.

The same misunderstanding (*b*) that gave rise to our Author's notes, seems likewise to have given occasion to certain sharp *innuendos* contained in them and particularly in his concluding paragraph; which I shall therefore most willingly omit remarking on.

(*b*) See N.I.

EDINBURGH, }
Nov. 20. } 1758.

F I N I S.